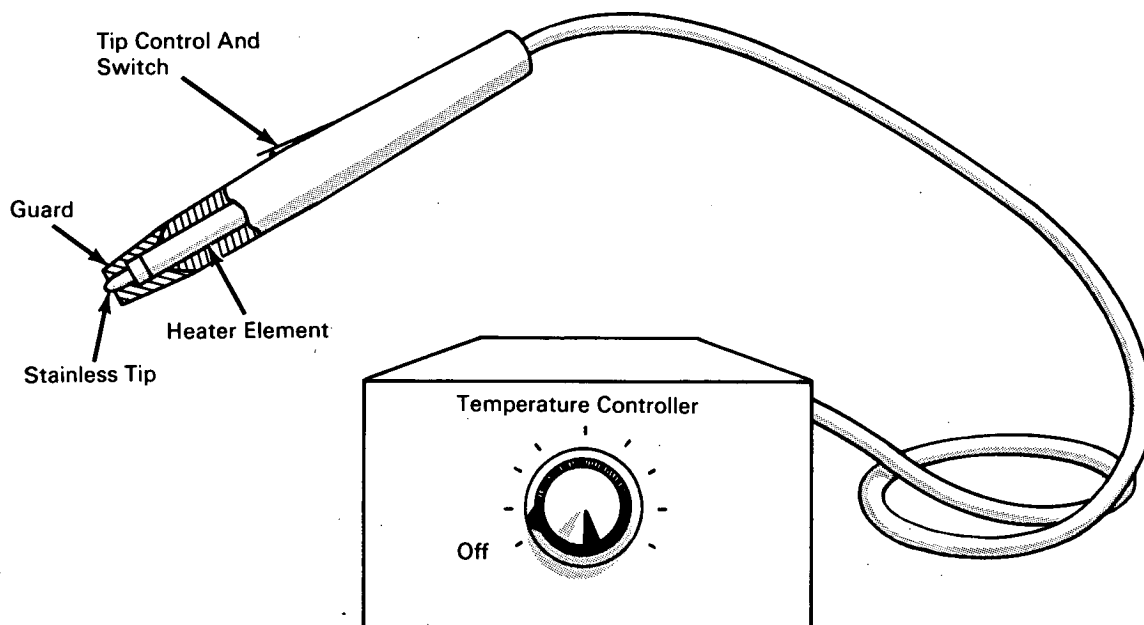


*Corrected Copy***NASA TECH BRIEF**

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## Hand-Held Instrument Should Relieve Hematoma Pressure



### The problem:

The relief of excessive pressure buildup (hematomas) beneath fingernails and toenails caused by ruptured blood vessels is normally obtained by an involved surgical procedure. The nail area is scrubbed clean, the member is anesthetized by freezing with ethyl chloride or by digital block with a local. The nail is then pierced with a sterile drill or heated hypodermic needle, neither technique being devoid of psychological trauma on the part of the patient.

### The solution:

A device, that simplifies the operative procedure, in the form of a self-contained portable instrument with an instant variable heating tip, adjustable depth settings and a variety of interchangeable tip sizes for cauterizing small areas and relieving pressurized clots.

### How it's done:

The device consists of a temperature controller with integral battery and a surgical tool connected to it by appropriate wiring. The surgical tool consists of a

(continued overleaf)

heating element, removable and interchangeable stainless steel tip, and a combination tip depth control and switch, all contained in a plastic case.

To operate, the affected area is cleaned and coated with a standard disinfectant but need not be anesthetized. The tip is adjusted to make a penetration through the nail but not sufficient to contact any tissue thereunder. The heating element is activated and, after a 3-second interval, the instrument is brought to bear lightly on the nail above the hematoma. The heated tip burns easily and quickly through the nail without noticeable discomfort to the patient and provides instant relief.

**Note:**

This development is in conceptual stage only, and as of date of publication of this Tech Brief, neither a model nor prototype has been constructed.

**Patent status:**

No patent action is contemplated by NASA.

Source: L. J. Raggio and T. L. Robertson  
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